

Alternative Item Types: Frequently Asked Questions

The purpose of the National Certification Examination (NCE) and the Self-Evaluation Examination (SEE) is to gather statistical information used to make measured assessments of the knowledge, skills, and abilities possessed by and necessary for entry-level nurse anesthesia practitioners. In order to enhance the ability of the NCE and SEE to assess entry-level competency in the field of nurse anesthesia, the National Board of Certification and Recertification for Nurse Anesthetists (NBCRNA) uses various types of items within the examination.

What types of items might appear on the test?

The item types that may be encountered while taking the NCE and SEE include the traditional *multiple-choice* (MC) type, as well as the following alternative item types: *multi-select* (MS), *short answer* (SA), *drag-and-drop* (DD), and *hotspot* (HS). Alternative item types are utilized when the assessment of important subject matter is difficult to measure using the traditional multiple-choice format.

What is a multi-select (MS) question?

This item format is similar to a multiple choice item; however, the multi-select item consists of a question with 4-8 response options, including more than one correct response. The question will always indicate how many responses are correct. The examinee is asked to indicate correct responses.

The example below shows a multi-select question.

A Mallampati Class II airway assessment involves visualization of which pharyngeal structures?
(Select three)

- A. Upper incisors
- B. Soft palate
- C. Tonsillar pillars
- D. Tonsillar fauces
- E. Uvula
- F. Epiglottis

The three correct responses in the example above are *soft palate*, *tonsillar fauces*, and *uvula*. The examinee would click in the box next to each of those three options to place the check, and then proceed to the next question.

Is there partial credit for MS questions?

No. ALL correct responses must be selected for credit to be awarded; no partial credit will be awarded.

What is a short answer (SA) question?

The examinee is asked to respond to a question by typing in a numerical response.

The example below asks for the density of a substance. The calculation involves converting kilograms to grams and liters to milliliters, then dividing mass by volume.

What is the density of a substance, if 4.2 L of that substance weighs 4.5 kg?

Record your answer below as a number (2 decimals) in units of g/cm^3 .

1.07

g/cm^3

Will a calculator be available?

An onscreen calculator will be available within the test application. At the test center, examinees will also have access to an erasable note board on which to compute calculations.

In what form should short answers be entered?

Only numerical responses will be accepted as correct. The word form of numbers (“two,” “four,” “eighty-nine”) will NOT be counted as correct.

The units of the numerical response (e.g., kg, mL, mL/kg, etc.) will be indicated in the question stem. The units will also appear to the right of the response text box as in the example. Examinees should NOT enter the units in the response as it will NOT be counted as correct.

If the answer computed by the examinee involves more decimal places than what the question stipulates, use common rounding rules to round to the nearest decimal place (i.e., if the final digit is greater than or equal to 5, round up; if it is less than 5, round down). If the response requires rounding, always perform the rounding at the end of the calculation. The final answer entered by the examinee must contain the number decimal places indicated in the question stem, or it will be scored as incorrect.

In the example above, the answer is computed to be 1.0714285 . . . , but the answer must be in the form of a number with 2 decimals. So, the examinee must round to 2 digits and enter the result (1.07) in the text box as shown in the example.

What is a drag-and-drop (DD) item?

The examinee is asked to click and drag responses to appropriate corresponding targets. Directions are provided in the question. Question tasks include matching responses to targets or placing responses in a specified order. Examples of both of these styles are shown in examples on the following 2 pages and are paired with examples of completed responses.

Example 1 is a drag-and-drop matching item. It asks the examinee to match the racing driver with the country of the driver's birth. The examinee is supposed to click on each name (the response object) and drag it to the appropriate nation (the target).

Example 1: Drag-and-Drop Matching Item

Match the racing driver with his country of birth.

Germany	Tazio Nuvolari
Italy	Bernd Rosemeyer
Scotland	Jackie Stewart

Example 2 is a drag-and-drop ordering item. It asks the examinee to order the order the presidents in chronological order, from the oldest (first) to the most recent (last).

Example 2: Drag-and-Drop Ordering Item

Put the following 3 US presidents in chronological order.

Abraham Lincoln	First
George Washington	Second
Theodore Roosevelt	Third

If I make a mistake with a DD item, can I start over?

At any time, the examinee may “undo” the matches he/she has made by dragging responses back to their initial positions.

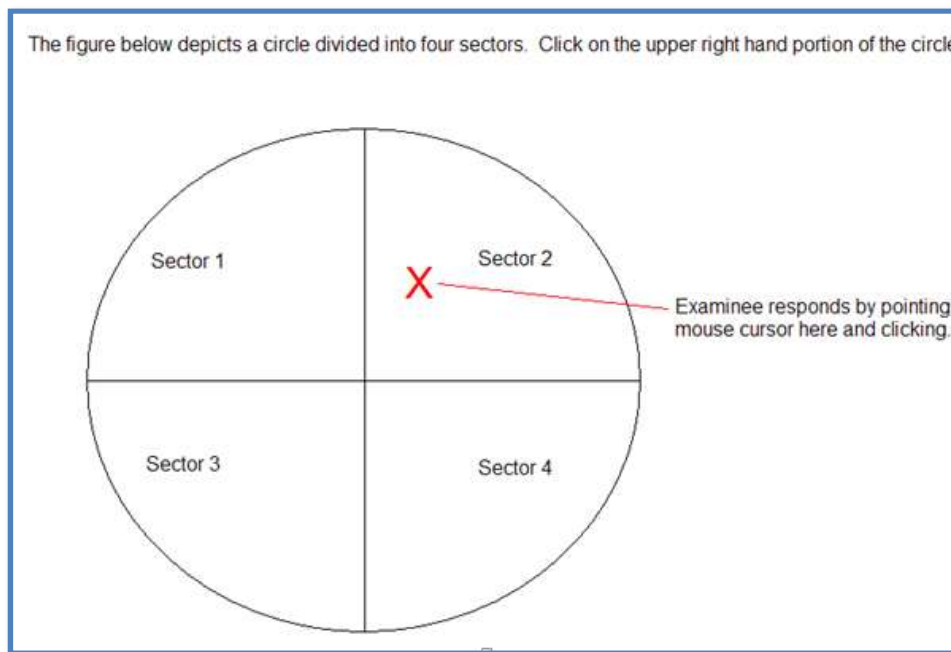
Is there partial credit for DD items?

No, credit for a response to this type of question requires **ALL** responses to be dropped on the correct target; no partial credit will be awarded.

What is a hotspot (HS) question?

In this item format, the examinee is presented with an image or a figure. The examinee is asked to select a region on the image or figure that corresponds to the prompt in the question stem. To select the region, the examinee simply clicks the correct region with the mouse. To change the answer, the examinee can click on the existing marker and drag it to a different location.

An example of a hotspot question is shown below. The correct answer is to place an “X” somewhere in the region labeled “Sector 2.”



Does the use of alternative item types change the general format of the NCE and SEE?

No. Even with the utilization of the various alternative item types, the format of the NCE remains exactly the same: a computerized adaptive test, where the examinee will be presented with between 100 and 170 exam items (including 30 experimental items). This means that the number of scored exam items will range from 70 to 140, depending on the number of total exam items the examinee is presented. Likewise, the SEE will continue to consist of 160 items, 60 of which are unscored, for all examinees. The exams are still taken on a typical PC workstation at approved Pearson VUE Test Centers.

What function do the alternative item types have in the NCE and SEE?

Alternative item types are added to the NCE and SEE in order to complement the traditional multiple-choice format. The alternative format helps the NBCRNA more accurately and efficiently assess important areas of entry-level knowledge that are difficult to assess in a traditional multiple-choice format.

How does the inclusion of alternative items improve the NCE's and SEE's assessment of the ability of entry-level nurse anesthetists?

Alternative item formats will allow examinees to effectively demonstrate important knowledge area competencies in a way different from the standard multiple-choice item format. Often, alternative item formats are more reflective of actual practice.

For instance, the ability to perform calculations accurately (e.g., calculating a dose of an anesthetic) is a very important entry-level skill for nurse anesthetists. The short answer format requires that the examinee perform a numerical computation with a certain precision and then enter the numerical value. The examinee is not able to simply recognize or guess the correct answer from a set of provided response options.

Needle placement in the case of regional anesthesia, in particular with regard to surrounding anatomical structures, is another important component of entry-level competency. It would be very difficult to assess this skill with a traditional multiple-choice item. The hotspot format, however, allows the examinee to select, on a scanned anatomical image, a region where the needle is correctly placed.

Do alternative items undergo the same validation and quality control procedures as traditional multiple-choice questions?

Yes. The alternative item types undergo the same content validation process as the traditional multiple-choice items. Before any item appears on any NBCRNA examination, it is reviewed by a committee of subject matter experts to determine if the question represents current and valid entry-level knowledge. The answer to each question is also validated in approved textbooks.

Like multiple-choice items, the alternative items are piloted and empirically evaluated before becoming a part of the operational question bank. Also, like multiple-choice items, the alternative items must satisfy stringent psychometric and statistical criteria before being included as operational (i.e., scored) questions on the examination.

What other testing programs make use of alternative item types?

Certification and licensure examinations for accountants, nursing specialties, IT specialists, architects, and physicians all use a combination of assessment formats, which feature alternatives to traditional multiple-choice items. Since 2003, the National Council Licensure Examination (NCLEX) has used the same types of alternative item types that now appear on the NCE and SEE. In all of these cases, the assessment method has been found to be psychometrically sound.

What percentage of exam items will be in the alternative formats?

No specifications regarding the percentage of alternative formats have been established. As such, there is no fixed number of alternative questions that each examinee will receive. All of the questions on the test, regardless of the format, are designed to assess entry-level ability, and it is not necessary to “balance” the exam with regard to question format. The NCE and SEE will continue to be content-balanced according to their respective test blueprints.

Does the inclusion of alternative item types make the exam harder?

No, it doesn't. Both the NCE and the SEE are adaptive exams, which means the difficulty of the items administered to each individual examinee is different for each candidate depending on his/her relative ability level. The examinee will not be presented with any scored items during exam administration that are substantially outside of his/her estimated ability range, regardless of the item format. The passing standard is applied in the same way for all candidates. Empirical evaluation subsequent to the introduction of the alternative items, has shown that the alternative item types, on average, are comparable to multiple choice items. Also, the introduction of the alternative formats has had a negligible impact on the overall performance of examinees taking the NCE and SEE.

How is examinee performance scored on alternative items?

Just like traditional multiple-choice items, the alternative item types are scored as either correct or incorrect; there is no award of partial credit on the scoring of any item. Alternative items will have the same weight, or will “count” the same, as the traditional multiple-choice items.

Will the alternative item types affect my chances of passing the exam?

The likelihood of passing the NCE or SEE exam will in no way be affected by the item types the examinee encounters during exam administration. The exams are scored in such a way that each and every examinee's final ability is compared to the same passing standard, as set by the NBCRNA. Analysis has shown that the introduction of the alternative formats has had a negligible impact on the overall performance of examinees taking the NCE and SEE.

Will I need more time to answer the exam items in the alternative format?

It is expected that some alternative questions will take less time to answer than typical multiple-choice items, and some will take more. The examination committees review response-time data for all questions on NBCRNA examinations. Any question that exhibits an inordinately short or long response time is removed from the exam. Analysis has shown that response times on the alternative format items are longer when compared to traditional multiple choice, but that the existing time limits on the examinations still allow for the vast majority of examinees to finish.

I have only practiced multiple-choice items. How should I prepare for the alternative item types?

The alternative item formats should not substantially change the way one prepares for the examinations. Proper preparation for the NCE and SEE should consist of a comprehensive, broad-based review of the curriculum and subject matter throughout one's training program. Simple review of how to answer different types of questions does not provide adequate preparation. The concepts assessed on the NCE and SEE will continue to represent entry-level knowledge of a nurse anesthetist. An examinee possessing knowledge of these concepts will be able to correctly answer test questions, regardless of their format. In many cases, alternative-format items should be more intuitively understandable to examinees.

To learn more about these alternative question formats, please go to Exam Tutorial on the NBCRNA website under Certification. Allow the tutorial a moment to load, and please be advised that it is optimized for Internet Explorer users.

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